

process which is excellent in flexibility, soldering heat-resistance, heat deterioration-resistance, nonelectrolytic gold plating-resistance, acid resistance, and water resistance. Therefore, the composition may be suitable for the resist ink for developing in an organic solvent, water, or an aqueous alkaline solution, especially for a flexible printed circuit board.

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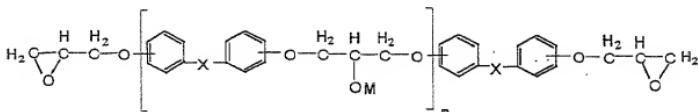
Disclosure of the Invention

The present invention relates to the following items:

- (1) An urethane oligomer (A) obtained by reacting a polyol compound(a) with a polybasic acid anhydride(b-1) having at least two acid anhydride groups per molecule, a polyisocyanate compound(c), and a hydroxy compound having ethylenically unsaturated groups and the salt thereof.
- (2) An urethane oligomer(A) according to the above (1), wherein said polybasic acid anhydride(b) having at least two acid anhydride groups per molecule has an acid value of 200-1500mgKOH/g, and the salt thereof.
- (3) An urethane oligomer (A) according to the above (1) or (2), wherein said urethane oligomer(A) has a weight-average molecular weight of 1,000-100,000, and the salt thereof.
- (4) An urethane oligomer (A) according to any of the above (1) to (3), wherein said urethane oligomer(A) has an acid value of 1-200mgKOH/g; and the salt thereof.

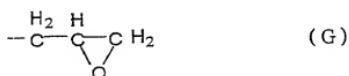
(5) A resin composition comprising an urethane oligomer(A) according to any of the above (1) to (4) and an unsaturated group-containing polycarboxylic acid resin(B) that is a product obtained by reacting an epoxy resin (e) having at least two epoxy groups per molecule with a monocarboxylic acid compound(f) having ethylenically unsaturated groups and a polybasic acid anhydride(b-2).

(6) A resin composition according to the above (5), wherein said epoxy resin (e) having at least two epoxy groups per molecule is represented by Formula (1):



(1)

(In the formula, X is -CH₂- or -C(CH₃)₂-, n is an integer of 1 or more, and M is hydrogen or a group represented by Formula (G) as shown below:



, provided that M is a group represented by Formula (G) if n is 1, while at least one M is a group represented by Formula

(G) and the remainders being hydrogen if n is an integer more than 1).

(7) A resin composition comprising an urethane oligomer(A) according to any of the above (1) to (4) and a thermoplastic polymer(D).

(8) A resin composition according to the above (5) or (6), further comprising a diluent(C).

(9) A resin composition according to the above (7) or (8), wherein said diluent(C) is a reactive diluent(C-1).

(10) A resin composition according to any of the above (5) to (9), comprising a photopolymerization initiator(E).

(11) A resin composition comprising an urethane oligomer(A) according to any of the above (1) to (4), a thermoplastic polymer(D) and a photopolymerization initiator(E).

(12) A resin composition according to the above (11), wherein said thermoplastic polymer(D) is a polymer having carboxyl groups.

(13) A resin composition according to any of the above (1) to (10), comprising a thermosetting component(F).

(14) A resin composition according to any of the above (5) to (13), wherein said resin composition is prepared for the solder resist in a printed circuit board or for an interlayer dielectric layer.

(15) A photosensitive film comprising being prepared by laminating the layer of a resin composition according to any